

3. Carol

Program Name: Carol.java

Input File: carol.dat

The UIL’s palindrome factory that has been producing palindromes since 1913 is in a bit of a bind. With over 100 years of palindrome producing, they’re beginning to run out of ways to make new and creative palindromes. Recall, a palindrome is a word or sequence of characters that reads the same backward as forward. Carol had the bright idea to take any word, that may or may not be a palindrome, and convert it to a palindrome. For example, “UIL” can be converted into one of two palindromes: “UILIU” or “LIUIL”. Either way, two new characters must be added either to the front or the back of “UIL”. However, “Solos” is already a palindrome, and does not need any new characters added to it to make it a palindrome. Can you help Carol write a program that given any word, will output the number of characters that need to be added to convert that word into a palindrome?

Input: Input begins with an integer N ($1 \leq N \leq 20$), the number of different test cases. Each of the following N lines will contain a word or sequence of characters with length L ($1 \leq L \leq 50$). Characters will be either alphabetic or numeric. Upper and lowercase letters are to be treated as the same letter. For example, ‘a’ and ‘A’ are both the same letter.

Output: For each word or sequence of characters, you are to output the number of character(s) that must be added to convert the word or sequence of characters into a palindrome. Characters can be added to either the front or the end of the word, but characters can NOT be added to both the front and the end. Formatting should match that presented in the Sample Output below.

Sample Input:

```
8
UIL
Solos
Java
CSRocks
12333
4456789
Password123
Racecars
```

Sample Output:

```
2 character(s) need to be added to convert UIL into a palindrome.
0 character(s) need to be added to convert Solos into a palindrome.
1 character(s) need to be added to convert Java into a palindrome.
6 character(s) need to be added to convert CSRocks into a palindrome.
2 character(s) need to be added to convert 12333 into a palindrome.
5 character(s) need to be added to convert 4456789 into a palindrome.
10 character(s) need to be added to convert Password123 into a palindrome.
1 character(s) need to be added to convert Racecars into a palindrome.
```